



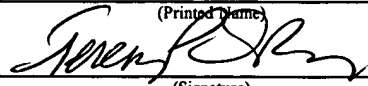
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Atty. Dkt. No.: WG0057H

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant: Simonutti et al.  
Title: HIGH VELOCITY GOLF BALL  
Appl. No.: 10/780,005  
Filing Date: 17 February 2004  
Examiner: Alvin A. Hunter  
Art Unit: 3711

<b>CERTIFICATE OF EXPRESS MAILING</b>	
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**APPEAL BRIEF UNDER 37 CFR 41.37**

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Commissioner for Patents  
P.O. Box 1450  
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ATTENTION: Board of Patent Appeals and Interferences

Honorable Sir:

Appellants herewith file their Appeal Brief in the above-identified case, pursuant to their Notice of Appeal filed 18 May 2006.

**1. REAL PARTY IN INTEREST (37 C.F.R §41.37(c)(1)(i))**

The real party in interest is Wilson Sporting Goods Co., the assignee of the present application (as recorded at reel 014999, frame 0975)

**2. RELATED APPEALS AND INTERFERENCES (37 C.F.R §41.37(c)(1)(ii))**

Appellants are not aware of any related appeals or interferences with regard to the present application.

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**3. STATUS OF CLAIMS (37 C.F.R §41.37(c)(1)(iii))**

Claims 1, 2, 5, 8, 10-13, 18, 19, 28-30, 32-34, 36, 37, 41, 42, and 57-68 are pending in the application. Claims 3, 4, 6, 7, 9, 14-17, 20-27, 31, 35, 38-40, and 43-56 have been canceled. The present Appeal is directed to claims 1, 2, 5, 8, 10-13, 18, 19, 28-30, 32-34, 36, 37, 41, 42, and 57-68, which were finally rejected in an Office Action mailed 22 November 2005.

**4. STATUS OF AMENDMENTS (37 C.F.R §41.37(c)(1)(iv))**

No amendment to the claims was filed subsequent to the most recent final rejection.

**5. SUMMARY OF CLAIMED SUBJECT MATTER  
(37 C.F.R §41.37(c)(1)(v))**

The present invention is directed to a golf ball that possesses exceptional initial velocity properties when struck with a driver club. More particularly, in certain embodiments, the golf ball, when struck by a driver club at a clubhead velocity of about 160 feet-per-second, has an initial velocity off the clubhead of greater than 240 feet-per-second. Also, in certain embodiments, the golf ball exhibits a coefficient of restitution of greater than about 0.785 at a test velocity of 175 feet-per-second. (Page 4, Paragraphs 0010 and 0012; Page 9, Paragraph 0032; Page 13, Paragraph 0039; Page 14, Paragraph 0044; Original Claims 1 and 47).

The golf ball includes at least three pieces. More particularly, the golf club may include a solid center or core 11, one or more mantle or intermediate layers 12, and a cover layer 13. (Page 4, Paragraph 0012; Fig. 1).

The center or core 11 may include a high cis-content polybutadiene rubber, the rubber being synthesized using a neodymium catalyst. The center or core 11 can have a deflection, under an applied static load of 200 lb., of between about 0.090 inches and about 0.150 inches. (Page 5, Paragraph 0014; Page 10, Paragraph 0034; Original Claim 1).

The intermediate mantle layer or layers 12 include a thermoplastic material, namely a co- or ter-polymer of ethylene and acrylic acid, wherein 100% of the acid groups are neutralized with metal ions. The co- or ter-polymer may include a level of magnesium oleate. (Page 6; Paragraphs 0018-0019).

The cover layer 13 includes an ionomer or ionomer blend and has a Shore D hardness, measured on the curved surface of the golf ball, of greater than about 70. (Page 7, Paragraph 0025).

**6. GROUND OF REJECTION TO BE REVIEWED ON APPEAL  
(37 C.F.R. §41.37(c)(1)(vi))**

1) Claims 1, 2, 5, 8, 10, 13, 18, and 19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Sullivan et al.* (U.S. Patent No. 5,779,561, hereinafter “*Sullivan ‘561*”) in view of *Sullivan et al.* (U.S. Patent No. 5,984,806, hereinafter “*Sullivan ‘806*”) and *Sullivan* (U.S. Patent No. 5,306,760, hereinafter “*Sullivan ‘760*”).

2) Claims 28-30, 32, 36, 37, 41, 42, and 64-68 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Sullivan ‘561* in view of *Sullivan ‘806* and *Yamada et al.* (U.S. Patent No. 5,585,440).

3) Claims 59-63 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Sullivan ‘561* in view of *Sullivan ‘806* and *Yamada et al.* (U.S. Patent No. 5,585,440) further in view of *Sullivan ‘760*.

4) Claims 11 and 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Sullivan ‘561* in view of *Sullivan ‘806* and *Sullivan ‘760* further in view of *Yamagishi et al.* (U.S. Patent No. 5,779,563).

5) Claims 33 and 34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Sullivan ‘561* in view of *Sullivan ‘806* and *Yamada et al.* (U.S. Patent No. 5,585,440) further in view of *Yamagishi et al.* (U.S. Patent No. 5,779,563).

7. ARGUMENT (37 C.F.R §41.37(c)(1)(vii))

I. CLAIMS 1, 2, 5, 8, 10, 13, 18, AND 19 ARE NOT UNPATENTABLE OVER SULLIVAN '561 IN VIEW OF SULLIVAN '806 AND SULLIVAN '760 UNDER 35 U.S.C. 103(a).

In the final Office Action, mailed 22 November 2005, the Examiner rejected claims 1, 2, 5, 8, 10, 13, 18, and 19 under 35 U.S.C. 103(a) as being unpatentable over *Sullivan '561* in view of *Sullivan '806* and *Sullivan '760*. Claim 1 is an independent claim, and claims 2, 5, 8, 10, 13, 18 and 19 depend from claim 1.

Independent claim 1 recites a golf ball including a solid center, at least one intermediate layer, and a cover layer. The solid center has a deflection, under an applied static load of 200 lb., of between about 0.090 inches and about 0.150 inches. The intermediate layer includes thermoplastic material. The material includes a co- or ter- polymer of ethylene and acrylic acid, wherein 100% of the acid groups are neutralized with metal ions. The co- or ter- polymer including a level of Magnesium Oleate. The cover layer includes an ionomer or ionomer blend and has a Shore D hardness, measured on the curved surface of the golf ball, of greater than about 70. The golf ball, when struck by a driver club at a clubhead velocity of about 160 feet-per-second, has an initial velocity off the clubhead of greater than 240 feet-per-second.

*Sullivan '561* alone or in combination with *Sullivan '806* and *Sullivan '760* does not disclose, teach or suggest the golf ball of claim 1. In particular, *Sullivan '561*, *Sullivan '806* and *Sullivan '760* do not disclose, teach or suggest a golf ball including a solid center and at least one intermediate layer wherein the intermediate layer includes a co- or ter- polymer of ethylene and acrylic acid, wherein 100% of the acid groups are neutralized with metal ions, the co- or ter- polymer including a level of Magnesium Oleate, as required by claim 1. *Sullivan '561*, *Sullivan '806* and *Sullivan '760* also do not disclose, teach or suggest a golf ball including a cover layer comprising an ionomer or ionomer blend having a Shore D hardness, measured on the curved surface of the golf ball, of greater than about 70, and a golf ball, which, when struck by a driver club at a clubhead velocity of about 160 feet-per-second, has an initial velocity off the clubhead of greater than 240 feet-per-second, as required by claim 1.

Regarding the intermediate layer including a co- or ter- polymer of ethylene and acrylic acid, wherein 100% of the acid groups are neutralized with metal ions, *Sullivan '561* discloses a three-piece golf ball, but includes no teaching, disclosure or suggestion relating to the neutralization of 100% of the acid groups in the material used to form the inner cover layer. Rather, *Sullivan '806* also discloses a three-piece golf ball and includes numerous references to the neutralization of acid groups in the copolymer of the material used in the first or inner layer (intermediate layer) of the golf ball of *Sullivan '806*. In fact, *Sullivan '806* refers to the neutralization of such acid groups in the inner layer of the golf ball in at least nine (9) different locations in the Specification. Each of these references in the Specification of *Sullivan '806* list a specific value or range of neutralization of the acid groups of the copolymer used to form the inner layer. In every instance, the value of range of neutralization is well below 100 percent as required by pending claim 1. In particular, the following specific values or ranges are used in *Sullivan '806* when describing the neutralization of the carboxylic acid groups of the inner cover layer: “approximately 10-75%, preferably 30-70%” (Col. 11, lines 10-14); “59% neutralized” (Col. 12, lines 20-22); “30-70% neutralized” (Col. 12, lines 38-40); “approximately 30 to about 70 percent of the acid groups neutralized ...” (Col. 12, lines 49-51); “neutralizing the copolymer to the extent desired (i.e. from about 10% to 90%)” (Col. 14, lines 7-11); “[t]he extent of neutralization is generally from about 10% to about 90%” (Col. 15, lines 53-55); and “[t]he carboxylic acid groups of the copolymer are partially neutralized (i.e., approximately 10-75%, preferably 30-70%)” (Col. 17, lines 40-42).

In Section 1, Page 3 of the Office Action, **ignoring the repeated disclosure and teaching of *Sullivan '806* regarding the composition of the inner cover layer, the Examiner makes reference to a single line of the Specification’s description of the outer cover layer, and attempts to apply this single line reference to requirements for the intermediate layer of the golf ball of claim 1.** The single reference in *Sullivan '806* referring to the outer cover layer states: “[t]he carboxylic acid groups of the copolymer may be totally or partially (i.e., approximately 15-75 percent) neutralized.” Col. 18, lines 34-36. *Sullivan '806* not only makes this statement in reference to the outer cover layer of the golf ball, but *Sullivan '806* never includes a percentage value defining this statement. *Sullivan '806* never

teaches or discloses 100% neutralization of carboxylic acid groups. Given the state of the art of golf ball design at the time of filing *Sullivan '806*, the reference to “totally” neutralized likely refers to the maximum neutralization used in the art at that time, which was approximately 90%. **100% neutralization was not known at the time of filing of *Sullivan '806*.** As known by one skilled in the art, a common ionomer (as described by *Sullivan '806*) with no modification additives cannot be processed at 100% neutralization. At 100% neutralization, such ionomers will not flow and are unworkable. *Sullivan '806* provides no further teaching or disclosure that would indicate that the word “totally” would mean anything other than approximately 90% neutralized to one of ordinary skill in the art. Accordingly, *Sullivan '806* fails to teach, suggest or disclose a golf ball including a solid center and at least one intermediate layer wherein the intermediate layer includes a co- or ter- polymer of ethylene and acrylic acid, wherein 100% of the acid groups are neutralized with metal ions.

*Sullivan '760* is directed to golf ball cover compositions and describes a cover of a golf ball formed of a material having carboxylic acid groups of a copolymer that is partially neutralized (approximately 15-75%). *Sullivan '760* is not only not directed to an intermediate layer of a golf ball, but in describing an outer layer, it lists a conventional neutralization range.

Regarding the level of Magnesium Oleate in the intermediate layer of the golf ball of claim 1, none of the cited references disclose or teach this requirement of claim 1. **Magnesium Oleate is one of the important components of the construction of the golf ball of claim 1 because it is the component that facilitates the flow of the co- or ter- polymer of ethylene and acrylic acid with 100% of the acid groups neutralized with metal ions.** Without Magnesium Oleate, or an equivalent material, 100% neutralized acid groups would be unable to flow and be unworkable. The Office Action refers to *Sullivan '760*, but *Sullivan '760* is directed to the cover layer of a golf ball and *not* to an intermediate layer. Further, *Sullivan '760*, and the other cited references, do not teach, disclose or suggest the use of a co- or ter- polymer of ethylene and acrylic acid with 100% of the acid groups neutralized with metal ions.

*Sullivan '561*, *Sullivan '806* and *Sullivan '760* also fail to disclose, teach or suggest a golf ball including a cover layer comprising an ionomer or ionomer blend having a Shore D hardness, measured on the curved surface of the golf ball, of greater than about 70, and a golf ball, which, when struck by a driver club at a clubhead velocity of about 160 feet-per-second, has an initial velocity off the clubhead of greater than 240 feet-per-second, as required by claim 1. Section 1, Page 2 of the Office Action relies on *Sullivan '561* and its reference to a golf ball having an outer cover layer with a Shore D hardness of at least 60. The Office Action then states that because “the structure [of] the golf ball has been met [which it has not], being struck by a driver club at a clubhead velocity of about 160 feet-per-second and an initial velocity off the clubhead of greater than about 240 feet-per-second is inherently [met] by *Sullivan et al. '561*.”

This Statement, however, is misplaced. First, a golf ball having an outer cover layer with a Shore D hardness of 60, or even 65, cannot produce the 240 feet-per-second initial velocity requirement. A golf ball's initial velocity when struck by a clubhead of a fixed speed (160 feet-per-second), is dependent (at least in part) on the hardness of the cover layer of the golf ball. A golf ball with a reduced hardness value (such as a Shore D of 60) will significantly deform upon impact deadening the response of the golf ball off the clubhead. A golf ball having a cover layer with a Shore D hardness value of 60 simply will not produce the required velocity of claim 1. Golf balls including an outer cover layer having a Shore D hardness value of approximately 60 are equivalent to high spin balls, which are designed to deform and produce increased spin upon impact, not necessarily exceptional distance or high velocity. The reference in *Sullivan '561* to a cover layer having a Shore D of at least 60 is a broad statement encompassing most golf balls. It does not disclose or identify the significance of producing a golf ball having a cover layer with a Shore D hardness value of greater than 70, particularly with the initial velocity requirement of claim 1.

Further, the golf ball constructions disclosed and taught by *Sullivan '561* do not inherently result in constructions that result in the Shore D hardness and initial velocity requirement of claim 1. Inherency requires the missing content to be necessary. *Southern Clay Products, Inc. v. United Catalysts, Inc.*, 43 Fed.Appx. 379, 388 (Fed. Cir. 2002).

Inherency may not be established by probabilities or possibilities. *Id.* “The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Southern Clay Products, Inc.*, 43 Fed.Appx. at 388 (citing *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999)). It is not necessary for the golf ball constructions disclosed and taught by *Sullivan ‘561*, or the cited art, to provide a golf ball that exhibits an initial velocity off a clubhead of greater than 240 feet-per-second, when struck by the clubhead of a driver at a velocity of about 160 feet-per-second, or that exhibits a coefficient of restitution of greater than about 0.785 at a test velocity of 175 feet-per-second. Therefore, it is not inherent that the golf ball constructions of *Sullivan ‘561* will result in the required velocity value. *Sullivan ‘561*, and the cited art, are devoid of any disclosure, teaching or suggestion indicating that the COR and initial velocity values will necessarily result from the structure of claim 1.

Accordingly, Appellants respectfully submit that independent claim 1 is patentable over *Sullivan ‘561* alone or in combination with *Sullivan ‘806* and *Sullivan ‘760* for at least the reasons stated above. Additionally, Appellants respectfully submit that claims 2, 5, 8, 10, 13, 18 and 19, which depend from claim 1, are also patentable over *Sullivan ‘561*, *Sullivan ‘806* and *Sullivan ‘760* for at least the same reasons.

Further, in reference to dependent claim 2, which adds the limitation “the golf ball has a coefficient of restitution of greater than 0.815 at a test velocity of 150 feet-per-second,” Section 1, Pages 3-4 of the Office Action states that *Sullivan ‘561* discloses a golf ball having a coefficient of restitution (“COR”) of at least 0.750 with a test velocity of 125 +/- 5 fps. The Examiner also states that “the COR is linearly related to the velocity, it is submitted that the golf ball of *Sullivan ‘561* has a COR of greater than 0.815 at a test velocity of 150 fps.” The Examiner’s assumption is false. **Although COR is linearly related to velocity, the slope of the relationship is negative.** In other words, the parameters are inversely proportional. **As test velocity increases, COR actually decreases.** This relationship results, at least in part, because as the velocity increases, the golf ball deforms more upon impact, and the energy absorbed by the deformation reduces the golf ball’s return velocity, and therefore its COR. Therefore the 0.750 COR of *Sullivan ‘561* at a test velocity of 125 fps would actually decrease at a velocity of 150 fps as required by claim 2.



Accordingly, *Sullivan* '561 does not teach, suggest or disclose the COR and velocity limitation of dependent claim 2.

In the Examiner's Remarks spanning Pages 12 and 13 of the Office Action, the Examiner points out that the Office does not have the ability to conduct tests such as measuring initial velocity and coefficient of restitution. Appellants' examples provided on pages 9-15 of the instant Specification provide sufficient support for Appellants' claims and arguments, thereby negating any need on the part of the Office to conduct any further testing. More particularly, Appellants' data provided in Table 4 on page 13 of the instant Specification shows the linear relationship between COR and velocity, with COR decreasing as velocity increases. Claim 2 is supported by the data in Table 4. Appellants' data provided in Table 5 on page 14 of the instant Specification shows that at a set clubhead velocity (e.g. 160 ft/s), the initial velocity of the ball varies as a result of the different mantle materials. The initial velocity limitation of claim 1 is supported by the data in Table 5. Since the limitations of these claims closely correspond with the data in the supporting tables, these claims are not indefinite.

In response to the Examiner's request for clarification of what the term "about" encompasses, Appellants submit that this term is used in claim 1 to provide room for marginal deviation from the stated clubhead velocity of about 160 ft/s. As understood by those skilled in the art, marginal deviation may occur during such testing when the test apparatus is set up for a specific clubhead velocity. As further understood by those skilled in the art, this marginal deviation from 160 ft/s would not overlap a clubhead velocity of "about 150 ft/s" or "about 175 ft/s."

Also, dependent claims 10 and 13 include the limitations "wherein the ball has a diameter of less than about 1.680 in." and "wherein the ball has a diameter within the range of 1.62 to 1.65 inches," respectfully. In reference to dependent claims 10 and 13, the Examiner states "[t]he diameter of *Sullivan* ['516] would perform equally as well because it reduces backspin, which inherently produces a more balanced golf ball." This statement is also misplaced. The amount of backspin produced by a ball is determined by the ball's material

construction, not its diameter. Further, balance is a static measurement, based upon the density of the ball and its construction.

Still further, *Sullivan '561* does not disclose a golf ball having a diameter of about 1.68 inches; rather, *Sullivan '561* specifically discloses a diameter of “at least 1.68 inches.” This disclosure of *Sullivan '561* is consistent with USGA requirements that require a minimum golf ball diameter of 1.68 inches. The golf ball of claims 10 and 13 are outside of the USGA requirements and outside of the disclosure and teachings of *Sullivan '561*. Further, in light of the strictly enforced, well-known USGA minimum diameter requirement for golf ball design, neither the USGA nor a person of ordinary skill in the art would equate a diameter of 1.68 inches with a diameter within the range of 1.62 to 1.65 inches. The decreased diameter of the golf ball of claims 10 and 13 facilitates the golf ball’s high velocity performance.

**II. CLAIMS 28-30, 32, 36, 37, 41, 42, AND 64-68 ARE NOT UNPATENTABLE OVER SULLIVAN '561 IN VIEW OF SULLIVAN '806 AND YAMADA ET AL. UNDER 35 U.S.C. 103(a).**

In the final Office Action, mailed 22 November 2005, the Examiner rejected claims 28-30, 32, 36, 37, 41, 42, and 64-68 under 35 U.S.C. 103(a) as being unpatentable over *Sullivan '561* in view of *Sullivan '806* and *Yamada et al.* Claim 28 is an independent claim, and claims 29, 30, 32, 36, 37, 41, 42 and 64-68 depend from claim 28.

Independent claim 28, recites a golf ball including a core, a mantle, and a cover layer. The core includes a high cis-content polybutadiene rubber. The rubber is synthesized using a neodymium catalyst. The mantle includes a co- or ter- polymer of ethylene and acrylic acid, wherein 100% of the acid groups are neutralized with metal ions. The cover layer includes an ionomer and has a Shore D hardness, measured on the curved surface of the golf ball, of greater than about 70. The golf ball exhibits a coefficient of restitution of greater than about 0.785 at a test velocity of 175 feet-per-second.

*Sullivan '561*, *Sullivan '806* and *Yamada et al.* do not disclose, teach or suggest a golf ball of claim 28. In particular, *Sullivan '561*, *Sullivan '806* and *Yamada et al.* do not disclose, teach or suggest a golf ball including a core, a mantle including a co- or ter- polymer of ethylene and acrylic acid, wherein about 100% of the acid groups are neutralized with metal ions, a cover layer comprising an ionomer having a Shore D hardness, measured on the curved surface of the golf ball of greater than 70. Much of the discussion above relating to claim 1 is directly applicable to these limitations of claim 28. *Yamada et al.* is directed to rubber compositions for golf balls and does not disclose, suggest or teach the 100% neutralization and Shore D hardness limitations of claim 28. Appellants respectfully submit that claim 28 is patentable over *Sullivan '561*, *Sullivan '806* and *Yamada et al.* for at least the same reasons stated above with respect to claim 1. Appellants also respectfully submit that claims 29, 30, 32, 36, 37, 41, 42 and 64-68, which depend from claim 28, are also patentable over *Sullivan '561*, *Sullivan '806* and *Yamada et al.* for at least the same reasons.

**III. CLAIMS 59-63 ARE NOT UNPATENTABLE OVER SULLIVAN '561 IN VIEW OF SULLIVAN '806 AND YAMADA ET AL. FURTHER IN VIEW OF SULLIVAN '760 UNDER 35 U.S.C. 103(a).**

In the final Office Action, mailed 22 November 2005, the Examiner rejected claims 59-63 under 35 U.S.C. 103(a) as being unpatentable over *Sullivan '561* in view of *Sullivan '806* and *Yamada et al.* further in view of *Sullivan '760*. Claims 59-61 depend from independent claim 1 and claims 62 and 63 depend from independent claim 28. Appellants respectfully submit that claims 59-63 are patentable over *Sullivan '561*, *Sullivan '806*, *Yamada et al.* and *Sullivan '760* for at least the same reasons stated above with respect to claims 1 and 28.

Further, with reference to claims 65 and 66, Section 3, Page 7 of the Office Action attempts to apply *Sullivan '561* in relation to the added limitations of claims 60 and 61 requiring the golf ball to have a weight within the ranges of 47.0 to 48.5 grams, and 48.0 to 48.5 grams, respectfully. However, *Sullivan '561* discloses a golf ball having a weight within the range of 43.8 to 45.9 grams, well outside the ranges specified by claims 60, 61, 65 and 66. *Sullivan '561* and the other cited art do not disclose, teach or suggest the weight ranges of claims 60, 61, 65 or 66. One of ordinary skill in the art would not arrive at or select the weight ranges of claims 60, 61, 65 and 66 using *Sullivan '561* without some teaching or suggestion to do so. Such a teaching or suggestion does not exist in *Sullivan '561* or the cited art. Further, the Examiner states that the Appellant does not disclose why the weight ranges are critical in order to attain the invention. The weight ranges are a limitation of claims 60, 61, 65 and 66. One of ordinary skill in the art would recognize that a heavier ball (a ball greater than 47.0 grams) will fly longer than a lightweight ball of less than 45 grams. Accordingly, Appellants respectfully submit that claims 60, 61, 65 and 66 are allowable over *Sullivan '561* and the cited art for this additional reason.

IV. **CLAIMS 11 AND 12 ARE NOT UNPATENTABLE OVER SULLIVAN '561 IN VIEW OF SULLIVAN '806 AND SULLIVAN '760 FURTHER IN VIEW OF YAMAGISHI ET AL. UNDER 35 U.S.C. 103(a).**

In the final Office Action, mailed 22 November 2005, the Examiner rejected claims 11 and 12 under 35 U.S.C. 103(a) as being unpatentable over *Sullivan* '561 in view of *Sullivan* '806 and *Sullivan* '760 further in view of *Yamagishi et al.* Claims 11 and 12 depend from independent claim 1. Appellants respectfully submit that claims 11 and 12 are patentable over *Sullivan* '561, *Sullivan* '806, *Sullivan* '760 and *Yamagishi et al.* for at least the same reasons stated above with respect to claim 1.

Further, *Yamagishi et al.* describes a multi-piece solid golf having a solid core and a cover of at least two layers enclosing the core. The solid core is formed of a rubber base and has a specific gravity of at least 1.00. The cover is formed of a thermoplastic resin and the cover outer layer has a greater specific gravity than the core or a cover inner layer.

The Office Action indicates that *Yamagishi et al.* discloses a golf ball wherein the core, intermediate layer and cover have approximately the same specific gravity. The Office Action cites *Yamagishi et al.* for the range in the core, intermediate layer and the cover. However, *Yamagishi et al.* does not specify all three layers as having approximately the same specific gravity. *Yamagishi et al.* teaches increasing the moment of inertia of the golf ball by moving as much weight to the outer portion of the golf ball as possible. Thus, in column 2, lines 31-34, *Yamagishi et al.* teaches that the cover outer layer must have a higher specific gravity than the cover inner layer, thereby specifically teaching away from the present invention.

Moreover, *Yamagishi et al.* is devoid of any disclosure, teaching or suggestion of a golf ball having a core, a mantle, and a cover layer with approximately the same specific gravity, such that when the ball is rotated in a solution of salt water of sufficient density to support the ball, the ball exhibits no single preferred orientation. As stated in the present application, such balance improves the intended flight and roll path of the ball.

Accordingly, Appellants respectfully submit that claims 11 and 12 are allowable over *Yamagishi et al.* and the cited art for these additional reasons.

**V. CLAIMS 33 AND 34 ARE NOT UNPATENTABLE OVER SULLIVAN '561 IN VIEW OF SULLIVAN '806 AND YAMADA ET AL. FURTHER IN VIEW OF YAMAGISHI ET AL. UNDER 35 U.S.C. 103(a).**

In the final Office Action, mailed 22 November 2005, the Examiner rejected claims 33 and 34 under 35 U.S.C. 103(a) as being unpatentable over *Sullivan '561* in view of *Sullivan '806* and *Yamada et al.* further in view of *Yamagishi et al.* Claims 33 and 34 depend from independent claim 28. Appellants respectfully submit that claims 33 and 34 are patentable over *Sullivan '561*, *Sullivan '806*, *Yamada et al.* and *Yamagishi et al.* for at least the same reasons stated above with respect to claim 28.

Further, the limitations of claims 33 and 34 are essentially the same as the limitations of claims 11 and 12, respectively. Appellants respectfully submit that claims 33 and 34 are patentable over *Yamagishi et al.* for at least the same reasons stated above with respect to claims 11 and 12.

**8. CONCLUSION**


For the above reasons, Appellants respectfully submit that the rejections posed by the Examiner are improper as a matter of law and fact. Accordingly, Appellants respectfully request the Board reverse the rejection of claims 1, 2, 5, 8, 10-13, 18, 19, 28-30, 32-34, 36, 37, 41, 42, and 57-68.

A check for the fee required by 37 CFR 41.37(a)(2) and 37 CFR 41.20(b)(2), updated pursuant to the Fiscal Year 2006 Fee Schedule, in the amount of \$500.00, is attached hereto. Please charge any additional amount owed, or credit any overpayment, to Deposit Account 501959.

The PTO did not receive the following  
listed item(s) Check \$ 500.00

Respectfully submitted,

Date 6 July 2006  
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**CLAIMS APPENDIX (37 C.F.R §41.37(c)(1)(viii))**

1. A golf ball comprising:  
a solid center having a deflection, under an applied static load of 200 lb., of between about 0.090 inches and about 0.150 inches;  
at least one intermediate layer comprised of thermoplastic material, the at least one intermediate layer comprises a co- or ter-polymer of ethylene and acrylic acid, wherein 100% of the acid groups are neutralized with metal ions, the co- or ter-polymer including a level of Magnesium Oleate; and  
a cover layer comprising an ionomer or ionomer blend and having a Shore D hardness, measured on the curved surface of the golf ball, of greater than about 70;  
wherein, the golf ball, when struck by a driver club at a clubhead velocity of about 160 feet-per-second, has an initial velocity off the clubhead of greater than 240 feet-per-second.

2. The golf ball of claim 1, where the golf ball has a coefficient of restitution of greater than 0.815 at a test velocity of 150 feet-per-second.

Claims 3 and 4 are canceled.

5. The golf ball of claim 1, wherein the at least one intermediate layer(s) has a Shore D hardness as measured on the curved outer surface of the at least one intermediate layer, of between about 55 and about 62.

Claims 6 and 7 are canceled.

8. The golf ball of claim 1, wherein the ter-polymer of the intermediate layer is comprised of ethylene, acrylic acid, and n-butyl acrylate.

9. (canceled)



10. The golf ball of claim 1, wherein the ball has a diameter of less than 1.680 in.

11. The golf ball of claim 1, wherein the core, the at least one intermediate layer, and the cover layer have approximately the same specific gravity, such that when the ball is rotated in a solution of salt water of sufficient density to support the ball, the ball exhibits no single preferred orientation.

12. The golf ball of claim 11, wherein the specific gravity of the core, the at least one intermediate layer, and the cover layer is between about 1.118 and about 1.132.

13. The golf ball of claim 1, wherein the ball has a diameter within the range of 1.62 to 1.65 inches.

Claims 14-17 are canceled.

18. The golf ball of claim 1, wherein the core is adjusted to a desired specific gravity through use of one or more high density fillers.

19. The golf ball of claim 18, wherein the high density filler is tungsten.

Claims 20-27 are canceled.

28. A golf ball comprising:

a core comprising a high cis-content polybutadiene rubber, the rubber being synthesized using a neodymium catalyst;

a mantle comprising a co- or ter- polymer of ethylene and acrylic acid, wherein 100% of the acid groups are neutralized with metal ions; and

a cover layer comprising an ionomer and having a Shore D hardness, measured on the curved surface of the golf ball, of greater than about 70;

wherein the golf ball exhibits a coefficient of restitution of greater than about 0.785 at a test velocity of 175 feet-per-second.

29. The golf ball of claim 28, wherein the golf ball, when struck by a driver club at a clubhead velocity of about 160 ft/s, has an initial velocity off a clubhead of greater than about 238 ft/s.

30. The golf ball of claim 28, wherein the polybutadiene rubber has a cis-1,4 content of at least 94 percent and the core further comprises about 20 to about 28 parts by weight of a co-crosslinking agent comprised primarily of a zinc salt of an unsaturated acrylate, about 3 to about 5 parts by weight of a metal oxide activator, and about 0.8 to about 1.5 parts per hundred resin of a free radical initiator.

31. (canceled)

32. The golf ball of claim 28, wherein the thermoplastic material comprises about 70 to about 80% ethylene, about 8 to about 10.5% acrylic acid and about 12 to about 20% n-butyl acrylate.

33. The golf ball of claim 28, wherein the core, the mantle, and the cover layer have approximately the same specific gravity, such that when the ball is rotated in a solution of salt water of sufficient density to support the ball, the ball exhibits no single preferred orientation.

34. The golf ball of claim 33, wherein the specific gravity of the core, the mantle, and the cover layer is between about 1.118 and about 1.132.

35. (canceled)

36. The golf ball of claim 28, wherein the ball has a diameter of less than 1.680 in.

37. The golf ball of claim 28, wherein the ball has a diameter within the range of 1.62 to 1.65 inches.

Claims 38-40 are canceled.

41. The golf ball of claim 28, wherein the core is adjusted to a desired specific gravity through use of one or more high density fillers.

42. The golf ball of claim 41, wherein the high density ~~inert~~ filler is tungsten.

Claims 43- 56 are canceled.

57. The golf ball of claim 1, wherein the level of Magnesium Oleate is greater than 5 phr of the base resin of the co- or ter-polymer.

58. The golf ball of claim 1, wherein the solid center is comprised of a high cis-content polybutadiene rubber, and wherein the rubber is synthesized using a neodymium catalyst.

59. The golf ball of claim 1, wherein the solid center is comprised of a polybutadiene rubber having a cis-1,4 content greater than 94 percent.

60. The golf ball of claim 1, wherein the golf ball has a weight equal to or greater than 47.0 grams and less than 48.5 grams.

61. The golf ball of claim 60, wherein the golf ball has a weight equal to or greater than 48.0 grams and less than 48.5 grams.

62. The golf ball of claim 28, wherein the co- or ter-polymer includes an amount of Magnesium Oleate.

63. The golf ball of claim 62, wherein the amount of Magnesium Oleate is greater than 5 phr of the base resin of the co- or ter-polymer.

64. The golf ball of claim 28, wherein the solid center is comprised of a polybutadiene rubber having a cis-1,4 content greater than 94 percent.

65. The golf ball of claim 28, wherein the golf ball has a weight equal to or greater than 47.0 grams and less than 48.5 grams.

66. The golf ball of claim 65, wherein the golf ball has a weight equal to or greater than 48.0 grams and less than 48.5 grams.

67. The golf ball of claim 28, wherein the core has a deflection, under an applied static load of 200 lb., of between about 0.090 inches and about 0.150 inches.

68. The golf ball of claim 28, wherein the golf ball exhibits a coefficient of restitution of greater than about 0.815 at a test velocity of 150 feet-per-second

**EVIDENCE APPENDIX**

None

**RELATED PROCEEDINGS APPENDIX**

None

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